

**IN THE CLAIMS:**

Please cancel claims 3 and 4.

Please amend the claims to read as indicated herein.

1. (Currently amended) A radiation shielding arrangement for shielding neutron radiation and gamma radiation from particle accelerators, storage rings, target, experimental or analytical devices, comprising at least one shielding element including a gypsum wall, wherein said gypsum wall made of a first material including includes bound water, and wherein said gypsum wall has a thickness that is matched to a radiation spectra of a high-energy particle accelerator.

2. (Currently amended) The radiation shielding arrangement according to claim 1, wherein said ~~first material includes~~ gypsum is in a bound state in a chemical composition  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ .

3-4. (Cancelled)

5. (Currently amended) ~~The~~A radiation shielding arrangement ~~according to claim 3, for shielding neutron radiation and gamma radiation from particle accelerators, storage rings, target, experimental or analytical devices, comprising at least one shielding element including a gypsum wall that includes gypsum, wherein said gypsum includes bound water, and wherein said gypsum wall has a thickness greater than or equal to a secondary radiation equilibrium thickness.~~

6. (Currently amended) ~~The~~A radiation shielding arrangement ~~according to claim 4, for shielding neutron radiation and gamma radiation from particle accelerators, storage rings, target, experimental or analytical devices, wherein said at least one shielding element has a form of arrangement has~~ a multilayer construction and comprises at least a first layer and a second layer, and wherein said first layer is a spallation layer and said second layer is a neutron retarding layer.

7. (Currently amended) The radiation shielding arrangement according to claim 46, wherein said ~~at least one shielding element arrangement~~ has ~~a form of~~ a modular construction.

8. (Currently Amended) The ~~r~~Radiation radiation shielding arrangement according to claim 46, wherein said ~~at least one shielding element arrangement~~ includes a loadbearing layer arranged on a first side of said shielding element and has at least a minimum thickness dimensioned such that said at least one shielding element and said loadbearing layer are self-supporting.

9. (Currently amended) The radiation shielding arrangement according to claim 46, wherein said loadbearing layer includes concrete formwork.

10. (Currently amended) The radiation shielding arrangement according to claim 46, wherein said shielding element has two sides, ~~with~~wherein said concrete formwork is on said sides.

11. (Currently amended) The radiation shielding arrangement according to claim 46, further comprising a neutron absorber layer having a neutron-absorbing material.

12. (Currently amended) The radiation shielding arrangement according to claim 46, further comprising a neutron absorber layer having boron, cadmium and gadolinium.

13. (Currently amended) ~~The~~A radiation shielding arrangement ~~according to claim 1, for shielding neutron radiation and gamma radiation from particle accelerators, storage rings, target, experimental or analytical devices, comprising:~~

at least one shielding element made of a first material including bound water; and  
~~further comprising~~ a neutron absorber layer having boron-paraffin.

14. (Previously presented) The radiation shielding arrangement according to claim 10, wherein a neutron absorber layer is arranged within said concrete formwork or between said concrete formwork and said gypsum wall.

15. (Previously presented) The radiation shielding arrangement according to claim 8, wherein said loadbearing layer includes a neutron-absorbing material.

16. (Previously presented) A radiation shielding arrangement, for shielding neutron radiation and gamma radiation from particle accelerators, storage rings, target, experimental or analytical devices, comprising at least one spallation layer including a material wherein spallation reactions are triggered by means of neutron irradiation.

17. (Previously presented) The radiation shielding arrangement according to claim 16, wherein said material is a metal.

18. (Currently amended) A use of gypsum from flue gas desulphurization plants for producing a radiation shielding arrangement for shielding neutron radiation and gamma radiation from high-energy particle accelerators, storage rings, target, experimental or analytical devices, wherein said gypsum is used as a neutron retarding material.

19. (Currently amended) A use of a shielding element ~~which~~that contains gypsum for shielding radiation from a device selected from the group consisting of a particle accelerator, a particle storage ring, a target device, an experimental device and an analytical device, wherein said shielding element has a thickness of at least 2 m.

20. (Currently amended) ~~The~~A radiation shielding arrangement ~~according to claim 3, for shielding neutron radiation and gamma radiation from particle accelerators, storage rings, target, experimental or analytical devices, comprising at least one shielding element including a gypsum wall that includes gypsum, wherein said gypsum includes bound water, and wherein said gypsum wall has a thickness that is matched to a radiation spectra of a high-energy particle storage ring for a particle~~particles selected from the group consisting of electrons, positrons and ions.

21. (Currently amended) The radiation shielding arrangement according to claim ~~3~~1, wherein said ~~secondary radiation equilibrium~~gypsum wall thickness is selected from the group consisting of at least 2 m, at least 5 m and at least 7 m.